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6. (New) A gas refining method for adsorbing a reducing gas obtained by pressure gasification of coal or oil, said method comprising the steps of:

providing a reducing gas stream comprising sulfur-containing compounds obtained by gasification of a coal or oil;

introducing the reducing gas stream into an adsorbing and removing zone;

contacting the reducing gas stream with an adsorbent contained within the adsorbing and removing zone;

adsorbing the sulfur-containing compounds onto the adsorbent in said zone;

introducing a first oxygen-containing gas stream into the adsorbing and removing zone;

contacting the first oxygen-containing gas stream with the adsorbent having sulfur compounds absorbed thereon to form a regeneration gas containing sulfur dioxide;

bringing the regeneration gas, a second oxygen-containing gas stream, and a calcium-containing liquid slurry stream into gas-liquid contact in a second zone to effect absorption of sulfur dioxide by said liquid slurry and precipitation of a gypsum compound selected from the group consisting of α-gypsum hemihydrate and gypsum dihydrate from said liquid slurry; and

varying the temperature of the calcium-containing liquid slurry stream in said second zone between a first predetermined temperature range which causes selective precipitation of α-gypsum hemihydrate and a second predetermined temperature range which causes selective precipitation of gypsum dihydrate.

7. (New) A method according to Claim 6, wherein said step of varying the temperature of the calcium-containing liquid slurry comprises:

measuring the temperature of the calcium-containing liquid slurry in the second zone;

passing a coolant through a coolant passage around the second zone; and

varying the flow of coolant through the coolant passage such that the temperature of the liquid slurry is maintained within either the first predetermined temperature range or the second predetermined temperature range.

8. (New) A method according to Claim 6, further comprising the steps of:

withdrawing a regeneration recycle gas from the second zone, wherein a calcium compound-containing liquid slurry having sulfurous acid absorbed therein is located within the second zone;

recycling the regeneration recycle gas for use as the first oxygen-containing gas stream; and

adjusting the flow of the second oxygen-containing gas stream to a value corresponding to a sum of an amount of oxygen required to completely oxidize sulfurous acid absorbed into the calcium compound-containing liquid slurry and an amount of oxygen required for use in the first oxygen-containing stream.

9. (New) A method according to Claim 7, further comprising the steps of:

withdrawing a regeneration recycle gas from the second zone, wherein a calcium compound-containing liquid slurry having sulfurous acid absorbed therein is located within the second zone;

recycling the regeneration recycle gas for use as the first oxygen-containing gas stream; and

adjusting the flow of the second oxygen-containing gas stream to a value corresponding to a sum of an amount of oxygen required to completely oxidize sulfurous acid absorbed into the calcium compound-containing liquid slurry and an amount of oxygen required for use in the first oxygen-containing stream.

10. (New) A method according to Claim 6, wherein the regeneration gas enters the second zone at a pressure greater than atmospheric pressure.

11. (New) A method according to Claim 6, wherein the first predetermined temperature range is 120°C to 160°C.